

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

Electrical and Photometric tests as required to the IESNA test standard.

MODEL NUMBER

700TDOBLPN-LED930

REPORT NUMBER

104019509CHI-003

ISSUE DATE

July 28, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.:104019509CHI-003

REPORT DATE July 28, 2019:

TEST REPORT

TEST OF ONE LED PENDANT

MODEL NO. 700TDOBLPN-LED930

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00981438.

STANDARDS USED

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE

The client submitted one production sample of model number 700TDOBLPN-LED930. The sample was received by Intertek on July 17, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH07172019014704-003.

DATE OF TESTS

July 23, 2019 through July 24, 2019.

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SUMMARY

MODEL NO:	700TDOBLPN-LED930
DESCRIPTION:	LED pendant

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	399.8	393.9
Input Power (W) @ 120 (VAC)	4.64	4.64
Lumen Efficacy (lm/W)	86.2	84.9
Input Power Factor @ 120 (VAC)	0.781	0.782

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	24.12
Correlated Color Temperature (K)	3032
Color Rendering Index - Ra	92.2
Color Rendering - R9	61.4
DUV	0.0017
Chromaticity Coordinate (x)	0.432
Chromaticity Coordinate (y)	0.399
Chromaticity Coordinate (u')	0.250
Chromaticity Coordinate (v')	0.519

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/1/2019	7/1/2020
Omega Thermometer	DPI8-C24	146920	10/4/2018	10/4/2019
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/11/2018	12/11/2019
Pacific, AC power supply	118-ACX	CHI0358	VBV	VBV
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBV	VBV
Elgar AC Power Supply	CW1251M	146113	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146847	VBV	VBV
Yokogawa Power Analyzer	WT1600	146767	4/3/2019	4/3/2020
Omega Temperature	MDSi8	146873	7/2/2019	7/2/2020
Newport Thermohygrometer	iTHX-M	146382	4/17/2019	4/17/2020

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TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD

A Spectroradiometer and integrating sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD

A Type C Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

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TEST REPORT

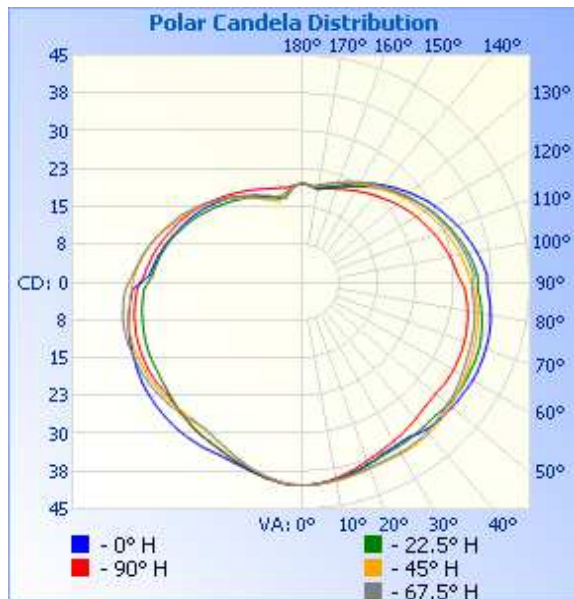
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
AH07172019014704-003	Horizontal	119.8	49.6	4.64	0.782	393.9	84.9

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	40	40	40	40	40
5	40	40	40	40	40
10	40	40	40	40	40
15	39	39	40	40	39
20	38	39	39	39	38
25	38	38	39	39	37
30	37	38	39	39	36
35	37	38	39	39	36
40	38	38	39	39	35
45	38	37	39	38	35
50	39	38	38	38	34
55	39	38	38	37	35
60	39	38	37	37	35
65	39	38	37	36	34
70	39	37	36	36	34
75	38	37	36	35	34
80	38	36	35	35	33
85	37	35	35	34	33
90	37	35	34	34	32
95	36	34	33	34	30
100	35	33	32	33	30
105	34	32	31	32	29
110	33	31	30	31	28
115	32	30	29	30	27
120	30	29	28	29	26
125	29	28	27	28	25
130	28	27	26	27	24
135	26	25	25	26	23
140	25	24	24	25	22
145	24	23	23	24	22
150	23	22	22	23	21
155	21	21	22	22	20
160	20	20	21	21	20
165	19	19	20	20	19
170	19	19	20	20	19
175	19	19	19	19	19
180	20	20	20	20	20



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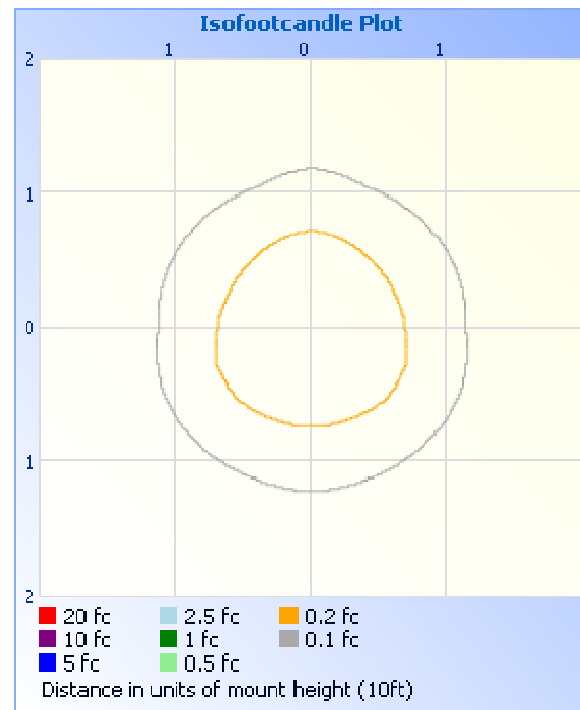
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 10ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT

Illuminance at a Distance		
	Center Beam fc	Beam Width
1.7ft	13.9 fc	
3.3ft	3.70 fc	
5.0ft	1.61 fc	
6.7ft	0.90 fc	
8.3ft	0.58 fc	
10.0ft	0.40 fc	



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	32.2	8.2
0-40	55.3	14.0
0-60	116.2	29.5
60-90	109.9	27.9
70-100	109.4	27.8
90-120	95.4	24.2
0-90	226.1	57.4
90-180	167.8	42.6
0-180	393.9	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	3.8	1.0
10-20	11.0	2.8
20-30	17.4	4.4
30-40	23.2	5.9
40-50	28.3	7.2
50-60	32.6	8.3
60-70	35.6	9.0
70-80	37.2	9.5
80-90	37.0	9.4
90-100	35.2	8.9
100-110	32.1	8.2
110-120	28.1	7.1
120-130	23.5	6.0
130-140	18.6	4.7
140-150	13.8	3.5
150-160	9.3	2.4
160-170	5.3	1.4
170-180	1.8	0.5

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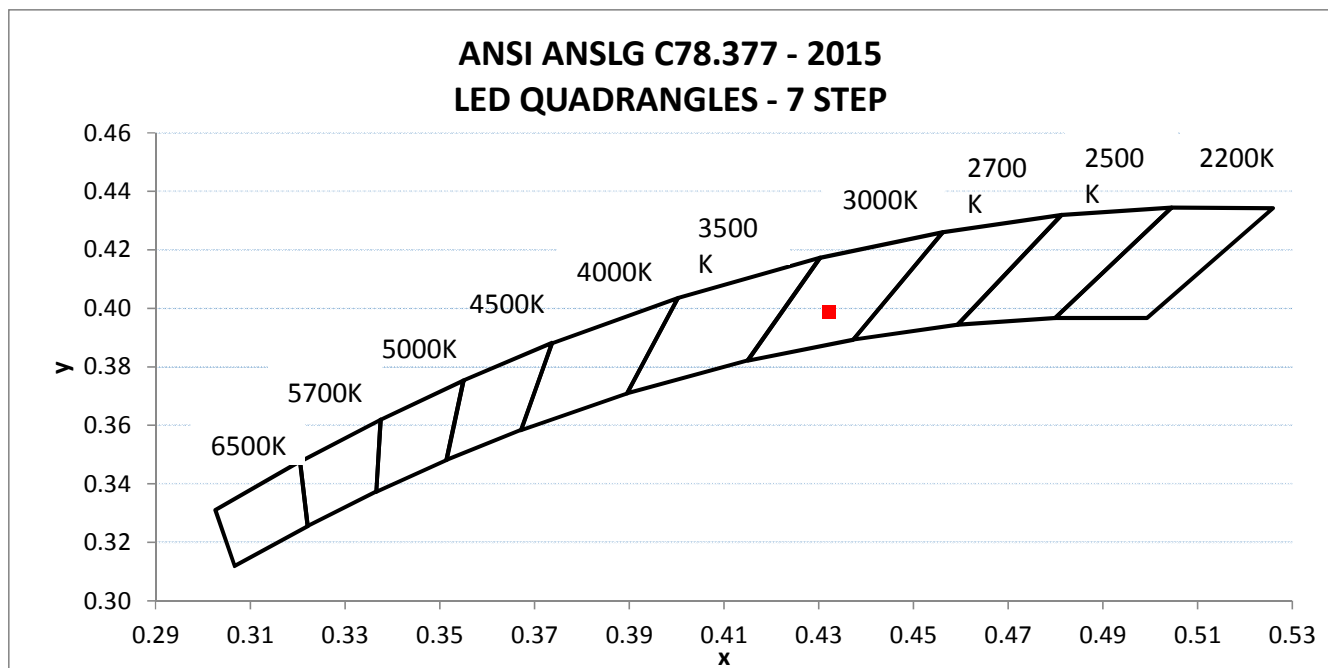
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	INPUT CURRENT ATHD (%)
AH07172019014704-003	Horizontal	120.0	49.5	4.64	0.781	24.12

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
399.8	86.2	3032	92.2	61.4	0.0017

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.432	0.399	0.250	0.519



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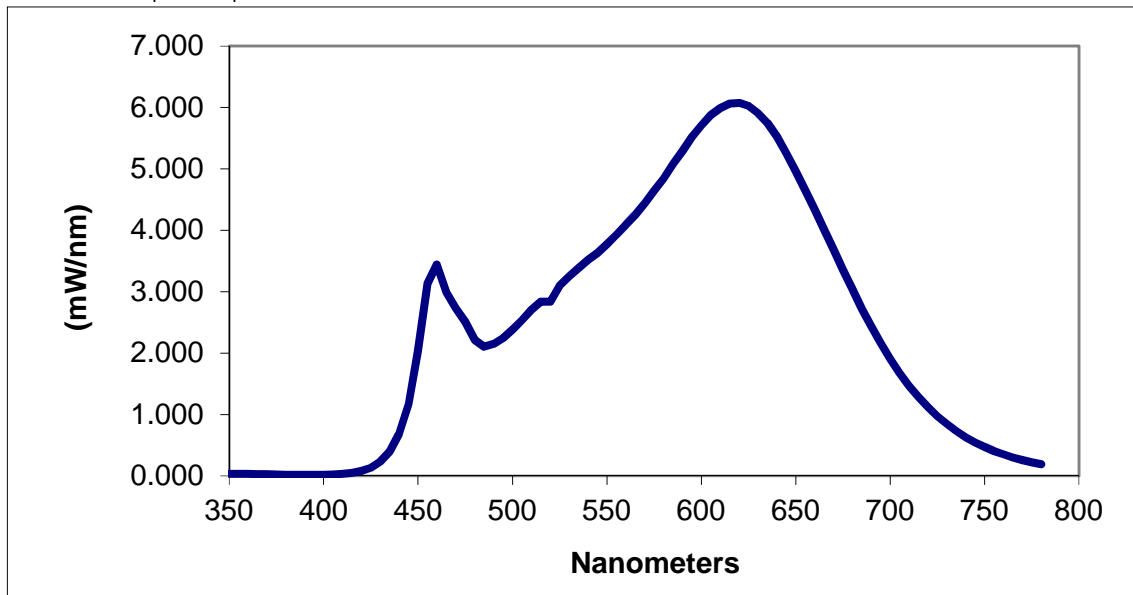
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.035	460	3.444	570	4.436	680	3.039
355	0.037	465	2.992	575	4.638	685	2.725
360	0.033	470	2.736	580	4.844	690	2.435
365	0.033	475	2.509	585	5.076	695	2.166
370	0.028	480	2.212	590	5.291	700	1.907
375	0.025	485	2.101	595	5.515	705	1.676
380	0.023	490	2.150	600	5.710	710	1.470
385	0.021	495	2.244	605	5.873	715	1.286
390	0.019	500	2.384	610	5.991	720	1.124
395	0.018	505	2.536	615	6.062	725	0.976
400	0.020	510	2.707	620	6.073	730	0.848
405	0.025	515	2.837	625	6.025	735	0.733
410	0.035	520	2.838	630	5.906	740	0.632
415	0.052	525	3.099	635	5.748	745	0.546
420	0.082	530	3.251	640	5.528	750	0.472
425	0.137	535	3.385	645	5.253	755	0.406
430	0.234	540	3.521	650	4.957	760	0.353
435	0.401	545	3.632	655	4.658	765	0.301
440	0.687	550	3.775	660	4.338	770	0.259
445	1.172	555	3.928	665	4.018	775	0.223
450	2.034	560	4.090	670	3.687	780	0.191
455	3.134	565	4.250	675	3.361		

*Without correction of sample absorption.



End Of Test Results

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PICTURES



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:

Jeffrey Davis
N.A. Technical Lead
Lighting Division

Attachments: IES File

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				